Joint NASA-NOAA projects on
Integrating Satellite Data Products for
Ecosystem-based Management of Living Marine Resources

These projects were developed during a workshop sponsored jointly by NASA and NOAA at MBARI (Monterey Bay Aquarium Research Institute) in Moss Landing CA in May 2006. The primary objective of these projects is to demonstrate the potential for current and proposed satellite observations and related Earth systems models to support and enhance NOAA's ecosystem based management of living marine resources. These projects involves investigators from multiple science centers within NOAA Marine Fisheries Service (NMFS). NASA provides funds to help achieve the objectives of the NASA Earth Science Division Applied Sciences Program.

Reducing Uncertainty in Alaskan Sablefish Recruitment Estimates
PI: Shotwell (AFSC) This component will examine the ability of satellite data, and the information it provides about environmental conditions, to reduce the uncertainty in Alaskan Sable recruitment estimates, in order to provide more effective management of the ~$100M sablefish resource. Preliminary results will be presented at the AFSC Plan Team in Fall 2007.

Integrating Environmental, Fisheries, and Electronic Tag Data to Characterize Essential Sea Turtle Habitat in Areas of Significant Bycatch
PI: Bograd (SWFSC) This component will begin development of a decision support tool to forecast potential sea turtle-fishery interactions in varying ocean environments, with emphasis on the CNP and the NWA, using a number of inputs, including remotely-sensed and *in situ* physical data and derived products, output from ROMS circulation and coupled physical-NPZ models, and loggerhead bycatch data.

Using Satellite Data to Improve Short-Term Recruitment Predictions for Georges Bank cod (*Gadus morhua*) and haddock (*Melanogrammus aiglefinus*) stocks
PI: Brodziak (PIFSC) This component will use satellite data to develop predictive models of how wind stress, wind direction, surface water temperature, and sea surface height affect recruitment of Georges Bank haddock and cod. Assuming that reliable predictive models can be derived, the standard AGEPRO projection model will be modified to incorporate relevant environmental forcing terms to improve the accuracy of projections used to set short-term total allowable catch levels.

Improving Rebuilding Plans for Overfished West Coast Fish Stocks through Inclusion of Climate Information
PI: Bograd (NMFS)
NOAA Fisheries uses rebuilding analysis tools to develop rebuilding plans for fish stocks that have been overfished. The analysis tool produces a probability distribution for the expected time to rebuild, allowing a regional fishery management council to determine the level of allowable catch that balances rebuilding goals and fishing community needs. There's a need to account for possible roles of climate-driven 'regime' shifts in the rebuilding plan. This project assesses

satellite-based products that capture interannual variability (e.g., SST and sea surface height) as well as in situ data and model-derived products, and initial efforts focus on depleted rockfish stocks off the U.S. west coast. The project goal is to improve the precision and ability of the rebuilding tools to portray a more realistic characterization of possible fishery outcomes.

The deliverable from each project will be a report on the use of satellite data records on improving the understanding of fishery stock assessments and habitat classification of marine ecosystems to improve decision making.